SEQUENCE LISTING

<110> Mulroy, Robert
Krane, Ian

<120> NON-GLYCOSYLATED HUMAN
ALPHA-FETOPROTEIN, METHODS OF PRODUCTION, AND USES THEREOF

<130> 06727/012001

<150> 10/030,351
<151> 2002-06-07

<150> PCT/US00/00264
<151> 2000-01-06

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Glu Ser Ile Phe Leu Ile Phe Leu Leu Asn Phe Thr Glu Ser Arg Thr
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ctg cat aga aat gaa tat gga ata gct tcc ata ttg gat tct tac caa 152
Leu His Arg Asn Glu Tyr Gly Ile Ala Ser Ile Leu Asp Ser Tyr Gln
25 30 35

tgt act gca gag ata agt tta gct gac ctg gct acc ata ttt ttt gcc 200
Cys Thr Ala Glu Ile Ser Leu Ala Asp Leu Ala Thr Ile Phe Phe Ala
40 45 50

cag ttt gtt caa gaa gcc act tac aag gaa gta agc aaa atg gtg aaa 248
Gln Phe Val Gln Glu Ala Thr Tyr Lys Glu Val Ser Lys Met Val Lys
55 60 65

gat gca ttg act gca att gag aaa ccc act gga gat gaa cag tct tca 296
Asp Ala Leu Thr Ala Ile Glu Lys Pro Thr Gly Asp Glu Gln Ser Ser
70 75 80

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ggg tgt tta gaa aac cag cta cct gcc ttt ctg gaa gaa ctt tgc cat   344
Gly Cys Leu Glu Asn Gln Leu Pro Ala Phe Leu Glu Glu Leu Cys His
 85                  90                  95                 100

gag aaa gaa att ttg gag aag tac gga cat tca gac tgc tgc agc caa   392
Glu Lys Glu Ile Leu Glu Lys Tyr Gly His Ser Asp Cys Cys Ser Gln
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agt gaa gag gga aga cat aac tgt ttt ctt gca cac aaa aag ccc act   440
Ser Glu Glu Gly Arg His Asn Cys Phe Leu Ala His Lys Lys Pro Thr
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cca gca tcg atc cca ctt ttc caa gtt cca gaa cct gtc aca agc tgt   488
Pro Ala Ser Ile Pro Leu Phe Gln Val Pro Glu Pro Val Thr Ser Cys
        135                 140                 145

gaa gca tat gaa gaa gac agg gag aca ttc atg aac aaa ttc att tat   536
Glu Ala Tyr Glu Glu Asp Arg Glu Thr Phe Met Asn Lys Phe Ile Tyr
    150                 155                 160

gag ata gca aga agg cat ccc ttc ctg tat gca cct aca att ctt ctt   584
Glu Ile Ala Arg Arg His Pro Phe Leu Tyr Ala Pro Thr Ile Leu Leu
165                 170                 175                 180

tgg gct gct cgc tat gac aaa ata att cca tct tgc tgc aaa gct gaa   632
Trp Ala Ala Arg Tyr Asp Lys Ile Ile Pro Ser Cys Cys Lys Ala Glu
                185                 190                 195

aat gca gtt gaa tgc ttc caa aca aag gca gca aca gtt aca aaa gaa   680
Asn Ala Val Glu Cys Phe Gln Thr Lys Ala Ala Thr Val Thr Lys Glu
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tta aga gaa agc agc ttg tta aat caa cat gca tgt gca gta atg aaa   728
Leu Arg Glu Ser Ser Leu Leu Asn Gln His Ala Cys Ala Val Met Lys
        215                 220                 225

aat ttt ggg acc cga act ttc caa gcc ata act gtt act aaa ctg agt   776
Asn Phe Gly Thr Arg Thr Phe Gln Ala Ile Thr Val Thr Lys Leu Ser
    230                 235                 240

cag aag ttt acc aaa gtt aat ttt act gaa atc cag aaa cta gtc ctg   824
Gln Lys Phe Thr Lys Val Asn Phe Thr Glu Ile Gln Lys Leu Val Leu
245                 250                 255                 260

gat gtg gcc cat gta cat gag cac tgt tgc aga gga gat gtg ctg gat   872
Asp Val Ala His Val His Glu His Cys Cys Arg Gly Asp Val Leu Asp
                265                 270                 275

tgt ctg cag gat ggg gaa aaa atc atg tcc tac ata tgt tct caa caa   920
Cys Leu Gln Asp Gly Glu Lys Ile Met Ser Tyr Ile Cys Ser Gln Gln
            280                 285                 290

gac act ctg tca aac aaa ata aca gaa tgc tgc aaa ctg acc acg ctg   968
Asp Thr Leu Ser Asn Lys Ile Thr Glu Cys Cys Lys Leu Thr Thr Leu
        295                 300                 305

gaa cgt ggt caa tgt ata att cat gca gaa aat gat gaa aaa cct gaa   1016
Glu Arg Gly Gln Cys Ile Ile His Ala Glu Asn Asp Glu Lys Pro Glu
    310                 315                 320
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ggt cta tct cca aat cta aac agg ttt tta gga gat aga gat ttt aac   1064
Gly Leu Ser Pro Asn Leu Asn Arg Phe Leu Gly Asp Arg Asp Phe Asn
325                 330                 335                 340

caa ttt tct tca ggg gaa aaa aat atc ttc ttg gca agt ttt gtt cat   1112
Gln Phe Ser Ser Gly Glu Lys Asn Ile Phe Leu Ala Ser Phe Val His
                345                 350                 355

gaa tat tca aga aga cat cct cag ctt gct gtc tca gta att cta aga   1160
Glu Tyr Ser Arg Arg His Pro Gln Leu Ala Val Ser Val Ile Leu Arg
            360                 365                 370

gtt gct aaa gga tac cag gag tta ttg gag aag tgt ttc cag act gaa   1208
Val Ala Lys Gly Tyr Gln Glu Leu Leu Glu Lys Cys Phe Gln Thr Glu
        375                 380                 385

aac cct ctt gaa tgc caa gat aaa gga gaa gaa gaa tta cag aaa tac   1256
Asn Pro Leu Glu Cys Gln Asp Lys Gly Glu Glu Glu Leu Gln Lys Tyr
    390                 395                 400

atc cag gag agc caa gca ttg gca aag cga agc tgc ggc ctc ttc cag   1304
Ile Gln Glu Ser Gln Ala Leu Ala Lys Arg Ser Cys Gly Leu Phe Gln
405                 410                 415                 420

aaa cta gga gaa tat tac tta caa aat gcg ttt ctc gtt gct tac aca   1352
Lys Leu Gly Glu Tyr Tyr Leu Gln Asn Ala Phe Leu Val Ala Tyr Thr
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aag aaa gcc ccc cag ctg acc tcg tcg gag ctg atg gcc atc acc aga   1400
Lys Lys Ala Pro Gln Leu Thr Ser Ser Glu Leu Met Ala Ile Thr Arg
            440                 445                 450

aaa atg gca gcc aca gca gcc act tgt tgc caa ctc agt gag gac aaa   1448
Lys Met Ala Ala Thr Ala Ala Thr Cys Cys Gln Leu Ser Glu Asp Lys
        455                 460                 465

cta ttg gcc tgt ggc gag gga gcg gct gac att att atc gga cac tta   1496
Leu Leu Ala Cys Gly Glu Gly Ala Ala Asp Ile Ile Ile Gly His Leu
    470                 475                 480

tgt atc aga cat gaa atg act cca gta aac cct ggt gtt ggc cag tgc   1544
Cys Ile Arg His Glu Met Thr Pro Val Asn Pro Gly Val Gly Gln Cys
485                 490                 495                 500

tgc act tct tca tat gcc aac agg agg cca tgc ttc agc agc ttg gtg   1592
Cys Thr Ser Ser Tyr Ala Asn Arg Arg Pro Cys Phe Ser Ser Leu Val
                505                 510                 515

gtg gat gaa aca tat gtc cct cct gca ttc tct gat gac aag ttc att   1640
Val Asp Glu Thr Tyr Val Pro Pro Ala Phe Ser Asp Asp Lys Phe Ile
            520                 525                 530

ttc cat aag gat ctg tgc caa gct cag ggt gta gcg ctg caa acg atg   1688
Phe His Lys Asp Leu Cys Gln Ala Gln Gly Val Ala Leu Gln Thr Met
        535                 540                 545

aag caa gag ttt ctc att aac ctt gtg aag caa aag cca caa ata aca   1736
Lys Gln Glu Phe Leu Ile Asn Leu Val Lys Gln Lys Pro Gln Ile Thr
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    550                 555                 560

gag gaa caa ctt gag gct gtc att gca gat ttc tca ggc ctg ttg gag   1784
Glu Glu Gln Leu Glu Ala Val Ile Ala Asp Phe Ser Gly Leu Leu Glu
565                 570                 575                 580

aaa tgc tgc caa ggc cag gaa cag gaa gtc tgc ttt gct gaa gag gga   1832
Lys Cys Cys Gln Gly Gln Glu Gln Glu Val Cys Phe Ala Glu Glu Gly
                585                 590                 595

caa aaa ctg att tca aaa act cgt gct gct ttg gga gtt taa           1874
Gln Lys Leu Ile Ser Lys Thr Arg Ala Ala Leu Gly Val  *
            600                 605

attacttcag gggaagagaa gacaaaacga gtctttcatt cggtgtgaac ttttctcttt 1934
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Asp Ser Tyr Gln Cys Thr Ala Glu Ile Ser Leu Ala Asp Leu Ala Thr
        35                  40                  45
Ile Phe Phe Ala Gln Phe Val Gln Glu Ala Thr Tyr Lys Glu Val Ser
    50                  55                  60
Lys Met Val Lys Asp Ala Leu Thr Ala Ile Glu Lys Pro Thr Gly Asp
65                  70                  75                  80
Glu Gln Ser Ser Gly Cys Leu Glu Asn Gln Leu Pro Ala Phe Leu Glu
                85                  90                  95
Glu Leu Cys His Glu Lys Glu Ile Leu Glu Lys Tyr Gly His Ser Asp
            100                 105                 110
Cys Cys Ser Gln Ser Glu Glu Gly Arg His Asn Cys Phe Leu Ala His
        115                 120                 125
Lys Lys Pro Thr Pro Ala Ser Ile Pro Leu Phe Gln Val Pro Glu Pro
    130                 135                 140
Val Thr Ser Cys Glu Ala Tyr Glu Glu Asp Arg Glu Thr Phe Met Asn
145                 150                 155                 160
Lys Phe Ile Tyr Glu Ile Ala Arg Arg His Pro Phe Leu Tyr Ala Pro
                165                 170                 175
Thr Ile Leu Leu Trp Ala Ala Arg Tyr Asp Lys Ile Ile Pro Ser Cys
            180                 185                 190
Cys Lys Ala Glu Asn Ala Val Glu Cys Phe Gln Thr Lys Ala Ala Thr
        195                 200                 205
Val Thr Lys Glu Leu Arg Glu Ser Ser Leu Leu Asn Gln His Ala Cys
    210                 215                 220
Ala Val Met Lys Asn Phe Gly Thr Arg Thr Phe Gln Ala Ile Thr Val
225                 230                 235                 240
Thr Lys Leu Ser Gln Lys Phe Thr Lys Val Asn Phe Thr Glu Ile Gln
                245                 250                 255
Lys Leu Val Leu Asp Val Ala His Val His Glu His Cys Cys Arg Gly
            260                 265                 270
Asp Val Leu Asp Cys Leu Gln Asp Gly Glu Lys Ile Met Ser Tyr Ile
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        275                 280                 285
Cys Ser Gln Gln Asp Thr Leu Ser Asn Lys Ile Thr Glu Cys Cys Lys
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Leu Thr Thr Leu Glu Arg Gly Gln Cys Ile Ile His Ala Glu Asn Asp
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Glu Lys Pro Glu Gly Leu Ser Pro Asn Leu Asn Arg Phe Leu Gly Asp
                325                 330                 335
Arg Asp Phe Asn Gln Phe Ser Ser Gly Glu Lys Asn Ile Phe Leu Ala
            340                 345                 350
Ser Phe Val His Glu Tyr Ser Arg Arg His Pro Gln Leu Ala Val Ser
        355                 360                 365
Val Ile Leu Arg Val Ala Lys Gly Tyr Gln Glu Leu Leu Glu Lys Cys
    370                 375                 380
Phe Gln Thr Glu Asn Pro Leu Glu Cys Gln Asp Lys Gly Glu Glu Glu
385                 390                 395                 400
Leu Gln Lys Tyr Ile Gln Glu Ser Gln Ala Leu Ala Lys Arg Ser Cys
                405                 410                 415
Gly Leu Phe Gln Lys Leu Gly Glu Tyr Tyr Leu Gln Asn Ala Phe Leu
            420                 425                 430
Val Ala Tyr Thr Lys Lys Ala Pro Gln Leu Thr Ser Ser Glu Leu Met
        435                 440                 445
Ala Ile Thr Arg Lys Met Ala Ala Thr Ala Ala Thr Cys Cys Gln Leu
    450                 455                 460
Ser Glu Asp Lys Leu Leu Ala Cys Gly Glu Gly Ala Ala Asp Ile Ile
465                 470                 475                 480
Ile Gly His Leu Cys Ile Arg His Glu Met Thr Pro Val Asn Pro Gly
                485                 490                 495
Val Gly Gln Cys Cys Thr Ser Ser Tyr Ala Asn Arg Arg Pro Cys Phe
            500                 505                 510
Ser Ser Leu Val Val Asp Glu Thr Tyr Val Pro Pro Ala Phe Ser Asp
        515                 520                 525
Asp Lys Phe Ile Phe His Lys Asp Leu Cys Gln Ala Gln Gly Val Ala
    530                 535                 540
Leu Gln Thr Met Lys Gln Glu Phe Leu Ile Asn Leu Val Lys Gln Lys
545                 550                 555                 560
Pro Gln Ile Thr Glu Glu Gln Leu Glu Ala Val Ile Ala Asp Phe Ser
                565                 570                 575
Gly Leu Leu Glu Lys Cys Cys Gln Gly Gln Glu Gln Glu Val Cys Phe
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Ala Glu Glu Gly Gln Lys Leu Ile Ser Lys Thr Arg Ala Ala Leu Gly
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 1               5                  10                  15
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tac caa tgt act gca gag ata agt tta gct gac ctg gct acc ata ttt   96
Tyr Gln Cys Thr Ala Glu Ile Ser Leu Ala Asp Leu Ala Thr Ile Phe
            20                  25                  30

ttt gcc cag ttt gtt caa gaa gcc act tac aag gaa gta agc aaa atg   144
Phe Ala Gln Phe Val Gln Glu Ala Thr Tyr Lys Glu Val Ser Lys Met
        35                  40                  45

gtg aaa gat gca ttg act gca att gag aaa ccc act gga gat gaa cag   192
Val Lys Asp Ala Leu Thr Ala Ile Glu Lys Pro Thr Gly Asp Glu Gln
    50                  55                  60

tct tca ggg tgt tta gaa aac cag cta cct gcc ttt ctg gaa gaa ctt   240
Ser Ser Gly Cys Leu Glu Asn Gln Leu Pro Ala Phe Leu Glu Glu Leu
65                  70                  75                  80

tgc cat gag aaa gaa att ttg gag aag tac gga cat tca gac tgc tgc   288
Cys His Glu Lys Glu Ile Leu Glu Lys Tyr Gly His Ser Asp Cys Cys
                85                  90                  95

agc caa agt gaa gag gga aga cat aac tgt ttt ctt gca cac aaa aag   336
Ser Gln Ser Glu Glu Gly Arg His Asn Cys Phe Leu Ala His Lys Lys
            100                 105                 110

ccc act cca gca tcg atc cca ctt ttc caa gtt cca gaa cct gtc aca   384
Pro Thr Pro Ala Ser Ile Pro Leu Phe Gln Val Pro Glu Pro Val Thr
        115                 120                 125

agc tgt gaa gca tat gaa gaa gac agg gag aca ttc atg aac aaa ttc   432
Ser Cys Glu Ala Tyr Glu Glu Asp Arg Glu Thr Phe Met Asn Lys Phe
    130                 135                 140

att tat gag ata gca aga agg cat ccc ttc ctg tat gca cct aca att   480
Ile Tyr Glu Ile Ala Arg Arg His Pro Phe Leu Tyr Ala Pro Thr Ile
145                 150                 155                 160

ctt ctt tgg gct gct cgc tat gac aaa ata att cca tct tgc tgc aaa   528
Leu Leu Trp Ala Ala Arg Tyr Asp Lys Ile Ile Pro Ser Cys Cys Lys
                165                 170                 175

gct gaa aat gca gtt gaa tgc ttc caa aca aag gca gca aca gtt aca   576
Ala Glu Asn Ala Val Glu Cys Phe Gln Thr Lys Ala Ala Thr Val Thr
            180                 185                 190

aaa gaa tta aga gaa agc agc ttg tta aat caa cat gca tgt gca gta   624
Lys Glu Leu Arg Glu Ser Ser Leu Leu Asn Gln His Ala Cys Ala Val
        195                 200                 205

atg aaa aat ttt ggg acc cga act ttc caa gcc ata act gtt act aaa   672
Met Lys Asn Phe Gly Thr Arg Thr Phe Gln Ala Ile Thr Val Thr Lys
    210                 215                 220

ctg agt cag aag ttt acc aaa gtt aat ttt act gaa atc cag aaa cta   720
Leu Ser Gln Lys Phe Thr Lys Val Asn Phe Thr Glu Ile Gln Lys Leu
225                 230                 235                 240

gtc ctg gat gtg gcc cat gta cat gag cac tgt tgc aga gga gat gtg   768
Val Leu Asp Val Ala His Val His Glu His Cys Cys Arg Gly Asp Val
                245                 250                 255
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ctg gat tgt ctg cag gat ggg gaa aaa atc atg tcc tac ata tgt tct   816
Leu Asp Cys Leu Gln Asp Gly Glu Lys Ile Met Ser Tyr Ile Cys Ser
            260                 265                 270

caa caa gac act ctg tca aac aaa ata aca gaa tgc tgc aaa ctg acc   864
Gln Gln Asp Thr Leu Ser Asn Lys Ile Thr Glu Cys Cys Lys Leu Thr
        275                 280                 285

acg ctg gaa cgt ggt caa tgt ata att cat gca gaa aat gat gaa aaa   912
Thr Leu Glu Arg Gly Gln Cys Ile Ile His Ala Glu Asn Asp Glu Lys
    290                 295                 300

cct gaa ggt cta tct cca aat cta aac agg ttt tta gga gat aga gat   960
Pro Glu Gly Leu Ser Pro Asn Leu Asn Arg Phe Leu Gly Asp Arg Asp
305                 310                 315                 320

ttt aac caa ttt tct tca ggg gaa aaa aat atc ttc ttg gca agt ttt  1008
Phe Asn Gln Phe Ser Ser Gly Glu Lys Asn Ile Phe Leu Ala Ser Phe
                325                 330                 335

gtt cat gaa tat tca aga aga cat cct cag ctt gct gtc tca gta att  1056
Val His Glu Tyr Ser Arg Arg His Pro Gln Leu Ala Val Ser Val Ile
            340                 345                 350

cta aga gtt gct aaa gga tac cag gag tta ttg gag aag tgt ttc cag  1104
Leu Arg Val Ala Lys Gly Tyr Gln Glu Leu Leu Glu Lys Cys Phe Gln
        355                 360                 365

act gaa aac cct ctt gaa tgc caa gat aaa gga gaa gaa gaa tta cag  1152
Thr Glu Asn Pro Leu Glu Cys Gln Asp Lys Gly Glu Glu Glu Leu Gln
    370                 375                 380

aaa tac atc cag gag agc caa gca ttg gca aag cga agc tgc ggc ctc  1200
Lys Tyr Ile Gln Glu Ser Gln Ala Leu Ala Lys Arg Ser Cys Gly Leu
385                 390                 395                 400

ttc cag aaa cta gga gaa tat tac tta caa aat gcg ttt ctc gtt gct  1248
Phe Gln Lys Leu Gly Glu Tyr Tyr Leu Gln Asn Ala Phe Leu Val Ala
                405                 410                 415

tac aca aag aaa gcc ccc cag ctg acc tcg tcg gag ctg atg gcc atc  1296
Tyr Thr Lys Lys Ala Pro Gln Leu Thr Ser Ser Glu Leu Met Ala Ile
            420                 425                 430

acc aga aaa atg gca gcc aca gca gcc act tgt tgc caa ctc agt gag  1344
Thr Arg Lys Met Ala Ala Thr Ala Ala Thr Cys Cys Gln Leu Ser Glu
        435                 440                 445

gac aaa cta ttg gcc tgt ggc gag gga gcg gct gac att att atc gga  1392
Asp Lys Leu Leu Ala Cys Gly Glu Gly Ala Ala Asp Ile Ile Ile Gly
    450                 455                 460

cac tta tgt atc aga cat gaa atg act cca gta aac cct ggt gtt ggc  1440
His Leu Cys Ile Arg His Glu Met Thr Pro Val Asn Pro Gly Val Gly
465                 470                 475                 480

cag tgc tgc act tct tca tat gcc aac agg agg cca tgc ttc agc agc  1488
Gln Cys Cys Thr Ser Ser Tyr Ala Asn Arg Arg Pro Cys Phe Ser Ser
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                485                 490                 495

ttg gtg gtg gat gaa aca tat gtc cct cct gca ttc tct gat gac aag   1536
Leu Val Val Asp Glu Thr Tyr Val Pro Pro Ala Phe Ser Asp Asp Lys
        500                 505                 510

ttc att ttc cat aag gat ctg tgc caa gct cag ggt gta gcg ctg caa   1584
Phe Ile Phe His Lys Asp Leu Cys Gln Ala Gln Gly Val Ala Leu Gln
    515                 520                 525

acg atg aag caa gag ttt ctc att aac ctt gtg aag caa aag cca caa   1632
Thr Met Lys Gln Glu Phe Leu Ile Asn Leu Val Lys Gln Lys Pro Gln
530                 535                 540

ata aca gag gaa caa ctt gag gct gtc att gca gat ttc tca ggc ctg   1680
Ile Thr Glu Glu Gln Leu Glu Ala Val Ile Ala Asp Phe Ser Gly Leu
545                 550                 555                 560

ttg gag aaa tgc tgc caa ggc cag gaa cag gaa gtc tgc ttt gct gaa   1728
Leu Glu Lys Cys Cys Gln Gly Gln Glu Gln Glu Val Cys Phe Ala Glu
                565                 570                 575

gag gga caa aaa ctg att tca aaa act cgt gct gct ttg gga gtt taa   1776
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            580                 585                 590
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Phe Ala Gln Phe Val Gln Glu Ala Thr Tyr Lys Glu Val Ser Lys Met
        35                  40                  45
Val Lys Asp Ala Leu Thr Ala Ile Glu Lys Pro Thr Gly Asp Glu Gln
    50                  55                  60
Ser Ser Gly Cys Leu Glu Asn Gln Leu Pro Ala Phe Leu Glu Glu Leu
65                  70                  75                  80
Cys His Glu Lys Glu Ile Leu Glu Lys Tyr Gly His Ser Asp Cys Cys
                85                  90                  95
Ser Gln Ser Glu Glu Gly Arg His Asn Cys Phe Leu Ala His Lys Lys
            100                 105                 110
Pro Thr Pro Ala Ser Ile Pro Leu Phe Gln Val Pro Glu Pro Val Thr
        115                 120                 125
Ser Cys Glu Ala Tyr Glu Glu Asp Arg Glu Thr Phe Met Asn Lys Phe
    130                 135                 140
Ile Tyr Glu Ile Ala Arg Arg His Pro Phe Leu Tyr Ala Pro Thr Ile
145                 150                 155                 160
Leu Leu Trp Ala Ala Arg Tyr Asp Lys Ile Ile Pro Ser Cys Cys Lys
                165                 170                 175
Ala Glu Asn Ala Val Glu Cys Phe Gln Thr Lys Ala Ala Thr Val Thr
            180                 185                 190
Lys Glu Leu Arg Glu Ser Ser Leu Leu Asn Gln His Ala Cys Ala Val
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Met Lys Asn Phe Gly Thr Arg Thr Phe Gln Ala Ile Thr Val Thr Lys
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Leu Ser Gln Lys Phe Thr Lys Val Asn Phe Thr Glu Ile Gln Lys Leu
225                 230                 235                 240
Val Leu Asp Val Ala His Val His Glu His Cys Cys Arg Gly Asp Val
                245                 250                 255
Leu Asp Cys Leu Gln Asp Gly Glu Lys Ile Met Ser Tyr Ile Cys Ser
            260                 265                 270
Gln Gln Asp Thr Leu Ser Asn Lys Ile Thr Glu Cys Cys Lys Leu Thr
        275                 280                 285
Thr Leu Glu Arg Gly Gln Cys Ile Ile His Ala Glu Asn Asp Glu Lys
    290                 295                 300
Pro Glu Gly Leu Ser Pro Asn Leu Asn Arg Phe Leu Gly Asp Arg Asp
305                 310                 315                 320
Phe Asn Gln Phe Ser Ser Gly Glu Lys Asn Ile Phe Leu Ala Ser Phe
                325                 330                 335
Val His Glu Tyr Ser Arg Arg His Pro Gln Leu Ala Val Ser Val Ile
            340                 345                 350
Leu Arg Val Ala Lys Gly Tyr Gln Glu Leu Leu Glu Lys Cys Phe Gln
        355                 360                 365
Thr Glu Asn Pro Leu Glu Cys Gln Asp Lys Gly Glu Glu Glu Leu Gln
    370                 375                 380
Lys Tyr Ile Gln Glu Ser Gln Ala Leu Ala Lys Arg Ser Cys Gly Leu
385                 390                 395                 400
Phe Gln Lys Leu Gly Glu Tyr Tyr Leu Gln Asn Ala Phe Leu Val Ala
                405                 410                 415
Tyr Thr Lys Lys Ala Pro Gln Leu Thr Ser Ser Glu Leu Met Ala Ile
            420                 425                 430
Thr Arg Lys Met Ala Ala Thr Ala Ala Thr Cys Cys Gln Leu Ser Glu
        435                 440                 445
Asp Lys Leu Leu Ala Cys Gly Glu Gly Ala Ala Asp Ile Ile Ile Gly
    450                 455                 460
His Leu Cys Ile Arg His Glu Met Thr Pro Val Asn Pro Gly Val Gly
465                 470                 475                 480
Gln Cys Cys Thr Ser Ser Tyr Ala Asn Arg Arg Pro Cys Phe Ser Ser
                485                 490                 495
Leu Val Val Asp Glu Thr Tyr Val Pro Pro Ala Phe Ser Asp Asp Lys
            500                 505                 510
Phe Ile Phe His Lys Asp Leu Cys Gln Ala Gln Gly Val Ala Leu Gln
        515                 520                 525
Thr Met Lys Gln Glu Phe Leu Ile Asn Leu Val Lys Gln Lys Pro Gln
    530                 535                 540
Ile Thr Glu Glu Gln Leu Glu Ala Val Ile Ala Asp Phe Ser Gly Leu
545                 550                 555                 560
Leu Glu Lys Cys Cys Gln Gly Gln Glu Gln Glu Val Cys Phe Ala Glu
                565                 570                 575
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Glu Ser Ile Phe Leu Ile Phe Leu Leu Asn Phe Thr Glu Ser Arg Thr
5 10 15 20

ctg cat aga aat gaa tat gga ata gct tcc ata ttg gat tct tac caa 152
Leu His Arg Asn Glu Tyr Gly Ile Ala Ser Ile Leu Asp Ser Tyr Gln
25 30 35

tgt act gca gag ata agt tta gct gac ctg gct acc ata ttt ttt gcc 200
Cys Thr Ala Glu Ile Ser Leu Ala Asp Leu Ala Thr Ile Phe Phe Ala
40 45 50

cag ttt gtt caa gaa gcc act tac aag gaa gta agc aaa atg gtg aaa 248
Gln Phe Val Gln Glu Ala Thr Tyr Lys Glu Val Ser Lys Met Val Lys
55 60 65

gat gca ttg act gca att gag aaa ccc act gga gat gaa cag tct tca 296
Asp Ala Leu Thr Ala Ile Glu Lys Pro Thr Gly Asp Glu Gln Ser Ser
70 75 80

ggg tgt tta gaa aac cag cta cct gcc ttt ctg gaa gaa ctt tgc cat 344
Gly Cys Leu Glu Asn Gln Leu Pro Ala Phe Leu Glu Glu Leu Cys His
85 90 95 100

gag aaa gaa att ttg gag aag tac gga cat tca gac tgc tgc agc caa 392
Glu Lys Glu Ile Leu Glu Lys Tyr Gly His Ser Asp Cys Cys Ser Gln
105 110 115

agt gaa gag gga aga cat aac tgt ttt ctt gca cac aaa aag ccc act 440
Ser Glu Glu Gly Arg His Asn Cys Phe Leu Ala His Lys Lys Pro Thr
120 125 130

cca gca tcg atc cca ctt ttc caa gtt cca gaa cct gtc aca agc tgt 488
Pro Ala Ser Ile Pro Leu Phe Gln Val Pro Glu Pro Val Thr Ser Cys
135 140 145

gaa gca tat gaa gaa gac agg gag aca ttc atg aac aaa ttc att tat 536
Glu Ala Tyr Glu Glu Asp Arg Glu Thr Phe Met Asn Lys Phe Ile Tyr
150 155 160

gag ata gca aga agg cat ccc ttc ctg tat gca cct aca att ctt ctt 584
Glu Ile Ala Arg Arg His Pro Phe Leu Tyr Ala Pro Thr Ile Leu Leu
165 170 175 180

tgg gct gct cgc tat gac aaa ata att cca tct tgc tgc aaa gct gaa 632
Trp Ala Ala Arg Tyr Asp Lys Ile Ile Pro Ser Cys Cys Lys Ala Glu
185 190 195

aat gca gtt gaa tgc ttc caa aca aag gca gca aca gtt aca aaa gaa 680
Asn Ala Val Glu Cys Phe Gln Thr Lys Ala Ala Thr Val Thr Lys Glu

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            200                 205                 210

tta aga gaa agc agc ttg tta aat caa cat gca tgt gca gta atg aaa   728
Leu Arg Glu Ser Ser Leu Leu Asn Gln His Ala Cys Ala Val Met Lys
        215                 220                 225

aat ttt ggg acc cga act ttc caa gcc ata act gtt act aaa ctg agt   776
Asn Phe Gly Thr Arg Thr Phe Gln Ala Ile Thr Val Thr Lys Leu Ser
    230                 235                 240

cag aag ttt acc aaa gtt can ttt act gaa atc cag aaa cta gtc ctg   824
Gln Lys Phe Thr Lys Val Xaa Phe Thr Glu Ile Gln Lys Leu Val Leu
245                 250                 255                 260

gat gtg gcc cat gta cat gag cac tgt tgc aga gga gat gtg ctg gat   872
Asp Val Ala His Val His Glu His Cys Cys Arg Gly Asp Val Leu Asp
                265                 270                 275

tgt ctg cag gat ggg gaa aaa atc atg tcc tac ata tgt tct caa caa   920
Cys Leu Gln Asp Gly Glu Lys Ile Met Ser Tyr Ile Cys Ser Gln Gln
            280                 285                 290

gac act ctg tca aac aaa ata aca gaa tgc tgc aaa ctg acc acg ctg   968
Asp Thr Leu Ser Asn Lys Ile Thr Glu Cys Cys Lys Leu Thr Thr Leu
        295                 300                 305

gaa cgt ggt caa tgt ata att cat gca gaa aat gat gaa aaa cct gaa   1016
Glu Arg Gly Gln Cys Ile Ile His Ala Glu Asn Asp Glu Lys Pro Glu
    310                 315                 320

ggt cta tct cca aat cta aac agg ttt tta gga gat aga gat ttt aac   1064
Gly Leu Ser Pro Asn Leu Asn Arg Phe Leu Gly Asp Arg Asp Phe Asn
325                 330                 335                 340

caa ttt tct tca ggg gaa aaa aat atc ttc ttg gca agt ttt gtt cat   1112
Gln Phe Ser Ser Gly Glu Lys Asn Ile Phe Leu Ala Ser Phe Val His
                345                 350                 355

gaa tat tca aga aga cat cct cag ctt gct gtc tca gta att cta aga   1160
Glu Tyr Ser Arg Arg His Pro Gln Leu Ala Val Ser Val Ile Leu Arg
            360                 365                 370

gtt gct aaa gga tac cag gag tta ttg gag aag tgt ttc cag act gaa   1208
Val Ala Lys Gly Tyr Gln Glu Leu Leu Glu Lys Cys Phe Gln Thr Glu
        375                 380                 385

aac cct ctt gaa tgc caa gat aaa gga gaa gaa gaa tta cag aaa tac   1256
Asn Pro Leu Glu Cys Gln Asp Lys Gly Glu Glu Glu Leu Gln Lys Tyr
    390                 395                 400

atc cag gag agc caa gca ttg gca aag cga agc tgc ggc ctc ttc cag   1304
Ile Gln Glu Ser Gln Ala Leu Ala Lys Arg Ser Cys Gly Leu Phe Gln
405                 410                 415                 420

aaa cta gga gaa tat tac tta caa aat gcg ttt ctc gtt gct tac aca   1352
Lys Leu Gly Glu Tyr Tyr Leu Gln Asn Ala Phe Leu Val Ala Tyr Thr
                425                 430                 435

aag aaa gcc ccc cag ctg acc tcg tcg gag ctg atg gcc atc acc aga   1400
```

```
Lys Lys Ala Pro Gln Leu Thr Ser Ser Glu Leu Met Ala Ile Thr Arg
            440                 445                 450

aaa atg gca gcc aca gca gcc act tgt tgc caa ctc agt gag gac aaa   1448
Lys Met Ala Ala Thr Ala Ala Thr Cys Cys Gln Leu Ser Glu Asp Lys
        455                 460                 465

cta ttg gcc tgt ggc gag gga gcg gct gac att att atc gga cac tta   1496
Leu Leu Ala Cys Gly Glu Gly Ala Ala Asp Ile Ile Ile Gly His Leu
    470                 475                 480

tgt atc aga cat gaa atg act cca gta aac cct ggt gtt ggc cag tgc   1544
Cys Ile Arg His Glu Met Thr Pro Val Asn Pro Gly Val Gly Gln Cys
485                 490                 495                 500

tgc act tct tca tat gcc aac agg agg cca tgc ttc agc agc ttg gtg   1592
Cys Thr Ser Ser Tyr Ala Asn Arg Arg Pro Cys Phe Ser Ser Leu Val
                505                 510                 515

gtg gat gaa aca tat gtc cct cct gca ttc tct gat gac aag ttc att   1640
Val Asp Glu Thr Tyr Val Pro Pro Ala Phe Ser Asp Asp Lys Phe Ile
            520                 525                 530

ttc cat aag gat ctg tgc caa gct cag ggt gta gcg ctg caa acg atg   1688
Phe His Lys Asp Leu Cys Gln Ala Gln Gly Val Ala Leu Gln Thr Met
        535                 540                 545

aag caa gag ttt ctc att aac ctt gtg aag caa aag cca caa ata aca   1736
Lys Gln Glu Phe Leu Ile Asn Leu Val Lys Gln Lys Pro Gln Ile Thr
    550                 555                 560

gag gaa caa ctt gag gct gtc att gca gat ttc tca ggc ctg ttg gag   1784
Glu Glu Gln Leu Glu Ala Val Ile Ala Asp Phe Ser Gly Leu Leu Glu
565                 570                 575                 580

aaa tgc tgc caa ggc cag gaa cag gaa gtc tgc ttt gct gaa gag gga   1832
Lys Cys Cys Gln Gly Gln Glu Gln Glu Val Cys Phe Ala Glu Glu Gly
                585                 590                 595

caa aaa ctg att tca aaa act cgt gct gct ttg gga gtt taa           1874
Gln Lys Leu Ile Ser Lys Thr Arg Ala Ala Leu Gly Val  *
            600                 605

attacttcag gggaagagaa gacaaaacga gtctttcatt cggtgtgaac ttttctcttt 1934
aattttaact gatttaacac tttttgtgaa ttaatgaaat gataaagact tttatgtgag 1994
atttccttat cacagaaata aaatatctcc aaa                              2027

<210> 6
<211> 609
<212> PRT
<213> Homo sapiens

<220>
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<222> 251
<223> Xaa = Any Amino Acid

<400> 6
Met Lys Trp Val Glu Ser Ile Phe Leu Ile Phe Leu Leu Asn Phe Thr
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 1               5                  10                  15
Glu Ser Arg Thr Leu His Arg Asn Glu Tyr Gly Ile Ala Ser Ile Leu
            20                  25                  30
Asp Ser Tyr Gln Cys Thr Ala Glu Ile Ser Leu Ala Asp Leu Ala Thr
        35                  40                  45
Ile Phe Phe Ala Gln Phe Val Gln Glu Ala Thr Tyr Lys Glu Val Ser
    50                  55                  60
Lys Met Val Lys Asp Ala Leu Thr Ala Ile Glu Lys Pro Thr Gly Asp
65                  70                  75                  80
Glu Gln Ser Ser Gly Cys Leu Glu Asn Gln Leu Pro Ala Phe Leu Glu
                85                  90                  95
Glu Leu Cys His Glu Lys Glu Ile Leu Glu Lys Tyr Gly His Ser Asp
            100                 105                 110
Cys Cys Ser Gln Ser Glu Glu Gly Arg His Asn Cys Phe Leu Ala His
        115                 120                 125
Lys Lys Pro Thr Pro Ala Ser Ile Pro Leu Phe Gln Val Pro Glu Pro
    130                 135                 140
Val Thr Ser Cys Glu Ala Tyr Glu Glu Asp Arg Glu Thr Phe Met Asn
145                 150                 155                 160
Lys Phe Ile Tyr Glu Ile Ala Arg Arg His Pro Phe Leu Tyr Ala Pro
                165                 170                 175
Thr Ile Leu Leu Trp Ala Ala Arg Tyr Asp Lys Ile Ile Pro Ser Cys
            180                 185                 190
Cys Lys Ala Glu Asn Ala Val Glu Cys Phe Gln Thr Lys Ala Ala Thr
        195                 200                 205
Val Thr Lys Glu Leu Arg Glu Ser Ser Leu Leu Asn Gln His Ala Cys
    210                 215                 220
Ala Val Met Lys Asn Phe Gly Thr Arg Thr Phe Gln Ala Ile Thr Val
225                 230                 235                 240
Thr Lys Leu Ser Gln Lys Phe Thr Lys Val Xaa Phe Thr Glu Ile Gln
                245                 250                 255
Lys Leu Val Leu Asp Val Ala His Val His Glu His Cys Cys Arg Gly
            260                 265                 270
Asp Val Leu Asp Cys Leu Gln Asp Gly Glu Lys Ile Met Ser Tyr Ile
        275                 280                 285
Cys Ser Gln Gln Asp Thr Leu Ser Asn Lys Ile Thr Glu Cys Cys Lys
    290                 295                 300
Leu Thr Thr Leu Glu Arg Gly Gln Cys Ile Ile His Ala Glu Asn Asp
305                 310                 315                 320
Glu Lys Pro Glu Gly Leu Ser Pro Asn Leu Asn Arg Phe Leu Gly Asp
                325                 330                 335
Arg Asp Phe Asn Gln Phe Ser Ser Gly Glu Lys Asn Ile Phe Leu Ala
            340                 345                 350
Ser Phe Val His Glu Tyr Ser Arg Arg His Pro Gln Leu Ala Val Ser
        355                 360                 365
Val Ile Leu Arg Val Ala Lys Gly Tyr Gln Glu Leu Leu Glu Lys Cys
    370                 375                 380
Phe Gln Thr Glu Asn Pro Leu Glu Cys Gln Asp Lys Gly Glu Glu Glu
385                 390                 395                 400
Leu Gln Lys Tyr Ile Gln Glu Ser Gln Ala Leu Ala Lys Arg Ser Cys
                405                 410                 415
Gly Leu Phe Gln Lys Leu Gly Glu Tyr Tyr Leu Gln Asn Ala Phe Leu
            420                 425                 430
Val Ala Tyr Thr Lys Lys Ala Pro Gln Leu Thr Ser Ser Glu Leu Met
        435                 440                 445
Ala Ile Thr Arg Lys Met Ala Ala Thr Ala Ala Thr Cys Cys Gln Leu
    450                 455                 460
Ser Glu Asp Lys Leu Leu Ala Cys Gly Glu Gly Ala Ala Asp Ile Ile
465                 470                 475                 480
```

```
Ile Gly His Leu Cys Ile Arg His Glu Met Thr Pro Val Asn Pro Gly
                485                 490                 495
Val Gly Gln Cys Cys Thr Ser Ser Tyr Ala Asn Arg Arg Pro Cys Phe
            500                 505                 510
Ser Ser Leu Val Val Asp Glu Thr Tyr Val Pro Pro Ala Phe Ser Asp
        515                 520                 525
Asp Lys Phe Ile Phe His Lys Asp Leu Cys Gln Ala Gln Gly Val Ala
    530                 535                 540
Leu Gln Thr Met Lys Gln Glu Phe Leu Ile Asn Leu Val Lys Gln Lys
545                 550                 555                 560
Pro Gln Ile Thr Glu Glu Gln Leu Glu Ala Val Ile Ala Asp Phe Ser
                565                 570                 575
Gly Leu Leu Glu Lys Cys Cys Gln Gly Gln Glu Gln Glu Val Cys Phe
            580                 585                 590
Ala Glu Glu Gly Gln Lys Leu Ile Ser Lys Thr Arg Ala Ala Leu Gly
        595                 600                 605
Val
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<210> 7
<211> 1776
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)...(1776)

<221> misc_feature
<222> 699
<223> n = A or G

<400> 7

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aga aca ctg cat aga aat gaa tat gga ata gct tcc ata ttg gat tct   48
Arg Thr Leu His Arg Asn Glu Tyr Gly Ile Ala Ser Ile Leu Asp Ser
 1               5                  10                  15

tac caa tgt act gca gag ata agt tta gct gac ctg gct acc ata ttt   96
Tyr Gln Cys Thr Ala Glu Ile Ser Leu Ala Asp Leu Ala Thr Ile Phe
            20                  25                  30

ttt gcc cag ttt gtt caa gaa gcc act tac aag gaa gta agc aaa atg   144
Phe Ala Gln Phe Val Gln Glu Ala Thr Tyr Lys Glu Val Ser Lys Met
        35                  40                  45

gtg aaa gat gca ttg act gca att gag aaa ccc act gga gat gaa cag   192
Val Lys Asp Ala Leu Thr Ala Ile Glu Lys Pro Thr Gly Asp Glu Gln
    50                  55                  60

tct tca ggg tgt tta gaa aac cag cta cct gcc ttt ctg gaa gaa ctt   240
Ser Ser Gly Cys Leu Glu Asn Gln Leu Pro Ala Phe Leu Glu Glu Leu
65                  70                  75                  80

tgc cat gag aaa gaa att ttg gag aag tac gga cat tca gac tgc tgc   288
Cys His Glu Lys Glu Ile Leu Glu Lys Tyr Gly His Ser Asp Cys Cys
                85                  90                  95

agc caa agt gaa gag gga aga cat aac tgt ttt ctt gca cac aaa aag   336
```

```
Ser Gln Ser Glu Glu Gly Arg His Asn Cys Phe Leu Ala His Lys Lys
            100                 105                 110

ccc act cca gca tcg atc cca ctt ttc caa gtt cca gaa cct gtc aca   384
Pro Thr Pro Ala Ser Ile Pro Leu Phe Gln Val Pro Glu Pro Val Thr
        115                 120                 125

agc tgt gaa gca tat gaa gaa gac agg gag aca ttc atg aac aaa ttc   432
Ser Cys Glu Ala Tyr Glu Glu Asp Arg Glu Thr Phe Met Asn Lys Phe
    130                 135                 140

att tat gag ata gca aga agg cat ccc ttc ctg tat gca cct aca att   480
Ile Tyr Glu Ile Ala Arg Arg His Pro Phe Leu Tyr Ala Pro Thr Ile
145                 150                 155                 160

ctt ctt tgg gct gct cgc tat gac aaa ata att cca tct tgc tgc aaa   528
Leu Leu Trp Ala Ala Arg Tyr Asp Lys Ile Ile Pro Ser Cys Cys Lys
                165                 170                 175

gct gaa aat gca gtt gaa tgc ttc caa aca aag gca gca aca gtt aca   576
Ala Glu Asn Ala Val Glu Cys Phe Gln Thr Lys Ala Ala Thr Val Thr
            180                 185                 190

aaa gaa tta aga gaa agc agc ttg tta aat caa cat gca tgt gca gta   624
Lys Glu Leu Arg Glu Ser Ser Leu Leu Asn Gln His Ala Cys Ala Val
        195                 200                 205

atg aaa aat ttt ggg acc cga act ttc caa gcc ata act gtt act aaa   672
Met Lys Asn Phe Gly Thr Arg Thr Phe Gln Ala Ile Thr Val Thr Lys
    210                 215                 220

ctg agt cag aag ttt acc aaa gtt can ttt act gaa atc cag aaa cta   720
Leu Ser Gln Lys Phe Thr Lys Val Xaa Phe Thr Glu Ile Gln Lys Leu
225                 230                 235                 240

gtc ctg gat gtg gcc cat gta cat gag cac tgt tgc aga gga gat gtg   768
Val Leu Asp Val Ala His Val His Glu His Cys Cys Arg Gly Asp Val
                245                 250                 255

ctg gat tgt ctg cag gat ggg gaa aaa atc atg tcc tac ata tgt tct   816
Leu Asp Cys Leu Gln Asp Gly Glu Lys Ile Met Ser Tyr Ile Cys Ser
            260                 265                 270

caa caa gac act ctg tca aac aaa ata aca gaa tgc tgc aaa ctg acc   864
Gln Gln Asp Thr Leu Ser Asn Lys Ile Thr Glu Cys Cys Lys Leu Thr
        275                 280                 285

acg ctg gaa cgt ggt caa tgt ata att cat gca gaa aat gat gaa aaa   912
Thr Leu Glu Arg Gly Gln Cys Ile Ile His Ala Glu Asn Asp Glu Lys
    290                 295                 300

cct gaa ggt cta tct cca aat cta aac agg ttt tta gga gat aga gat   960
Pro Glu Gly Leu Ser Pro Asn Leu Asn Arg Phe Leu Gly Asp Arg Asp
305                 310                 315                 320

ttt aac caa ttt tct tca ggg gaa aaa aat atc ttc ttg gca agt ttt   1008
Phe Asn Gln Phe Ser Ser Gly Glu Lys Asn Ile Phe Leu Ala Ser Phe
                325                 330                 335
```

```
gtt cat gaa tat tca aga aga cat cct cag ctt gct gtc tca gta att   1056
Val His Glu Tyr Ser Arg Arg His Pro Gln Leu Ala Val Ser Val Ile
            340                 345                 350

cta aga gtt gct aaa gga tac cag gag tta ttg gag aag tgt ttc cag   1104
Leu Arg Val Ala Lys Gly Tyr Gln Glu Leu Leu Glu Lys Cys Phe Gln
        355                 360                 365

act gaa aac cct ctt gaa tgc caa gat aaa gga gaa gaa gaa tta cag   1152
Thr Glu Asn Pro Leu Glu Cys Gln Asp Lys Gly Glu Glu Glu Leu Gln
    370                 375                 380

aaa tac atc cag gag agc caa gca ttg gca aag cga agc tgc ggc ctc   1200
Lys Tyr Ile Gln Glu Ser Gln Ala Leu Ala Lys Arg Ser Cys Gly Leu
385                 390                 395                 400

ttc cag aaa cta gga gaa tat tac tta caa aat gcg ttt ctc gtt gct   1248
Phe Gln Lys Leu Gly Glu Tyr Tyr Leu Gln Asn Ala Phe Leu Val Ala
                405                 410                 415

tac aca aag aaa gcc ccc cag ctg acc tcg tcg gag ctg atg gcc atc   1296
Tyr Thr Lys Lys Ala Pro Gln Leu Thr Ser Ser Glu Leu Met Ala Ile
            420                 425                 430

acc aga aaa atg gca gcc aca gca gcc act tgt tgc caa ctc agt gag   1344
Thr Arg Lys Met Ala Ala Thr Ala Ala Thr Cys Cys Gln Leu Ser Glu
        435                 440                 445

gac aaa cta ttg gcc tgt ggc gag gga gcg gct gac att att atc gga   1392
Asp Lys Leu Leu Ala Cys Gly Glu Gly Ala Ala Asp Ile Ile Ile Gly
    450                 455                 460

cac tta tgt atc aga cat gaa atg act cca gta aac cct ggt gtt ggc   1440
His Leu Cys Ile Arg His Glu Met Thr Pro Val Asn Pro Gly Val Gly
465                 470                 475                 480

cag tgc tgc act tct tca tat gcc aac agg agg cca tgc ttc agc agc   1488
Gln Cys Cys Thr Ser Ser Tyr Ala Asn Arg Arg Pro Cys Phe Ser Ser
                485                 490                 495

ttg gtg gtg gat gaa aca tat gtc cct cct gca ttc tct gat gac aag   1536
Leu Val Val Asp Glu Thr Tyr Val Pro Pro Ala Phe Ser Asp Asp Lys
            500                 505                 510

ttc att ttc cat aag gat ctg tgc caa gct cag ggt gta gcg ctg caa   1584
Phe Ile Phe His Lys Asp Leu Cys Gln Ala Gln Gly Val Ala Leu Gln
        515                 520                 525

acg atg aag caa gag ttt ctc att aac ctt gtg aag caa aag cca caa   1632
Thr Met Lys Gln Glu Phe Leu Ile Asn Leu Val Lys Gln Lys Pro Gln
    530                 535                 540

ata aca gag gaa caa ctt gag gct gtc att gca gat ttc tca ggc ctg   1680
Ile Thr Glu Glu Gln Leu Glu Ala Val Ile Ala Asp Phe Ser Gly Leu
545                 550                 555                 560

ttg gag aaa tgc tgc caa ggc cag gaa cag gaa gtc tgc ttt gct gaa   1728
Leu Glu Lys Cys Cys Gln Gly Gln Glu Gln Glu Val Cys Phe Ala Glu
                565                 570                 575
```

```
gag gga caa aaa ctg att tca aaa act cgt gct gct ttg gga gtt taa   1776
Glu Gly Gln Lys Leu Ile Ser Lys Thr Arg Ala Ala Leu Gly Val  *
            580                 585                 590
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<210> 8
<211> 591
<212> PRT
<213> Homo sapiens

<400> 8

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Arg Thr Leu His Arg Asn Glu Tyr Gly Ile Ala Ser Ile Leu Asp Ser
 1               5                  10                  15
Tyr Gln Cys Thr Ala Glu Ile Ser Leu Ala Asp Leu Ala Thr Ile Phe
            20                  25                  30
Phe Ala Gln Phe Val Gln Glu Ala Thr Tyr Lys Glu Val Ser Lys Met
        35                  40                  45
Val Lys Asp Ala Leu Thr Ala Ile Glu Lys Pro Thr Gly Asp Glu Gln
    50                  55                  60
Ser Ser Gly Cys Leu Glu Asn Gln Leu Pro Ala Phe Leu Glu Glu Leu
65                  70                  75                  80
Cys His Glu Lys Glu Ile Leu Glu Lys Tyr Gly His Ser Asp Cys Cys
                85                  90                  95
Ser Gln Ser Glu Glu Gly Arg His Asn Cys Phe Leu Ala His Lys Lys
            100                 105                 110
Pro Thr Pro Ala Ser Ile Pro Leu Phe Gln Val Pro Glu Pro Val Thr
        115                 120                 125
Ser Cys Glu Ala Tyr Glu Glu Asp Arg Glu Thr Phe Met Asn Lys Phe
    130                 135                 140
Ile Tyr Glu Ile Ala Arg Arg His Pro Phe Leu Tyr Ala Pro Thr Ile
145                 150                 155                 160
Leu Leu Trp Ala Ala Arg Tyr Asp Lys Ile Ile Pro Ser Cys Cys Lys
                165                 170                 175
Ala Glu Asn Ala Val Glu Cys Phe Gln Thr Lys Ala Ala Thr Val Thr
            180                 185                 190
Lys Glu Leu Arg Glu Ser Ser Leu Leu Asn Gln His Ala Cys Ala Val
        195                 200                 205
Met Lys Asn Phe Gly Thr Arg Thr Phe Gln Ala Ile Thr Val Thr Lys
    210                 215                 220
Leu Ser Gln Lys Phe Thr Lys Val Gln Phe Thr Glu Ile Gln Lys Leu
225                 230                 235                 240
Val Leu Asp Val Ala His Val His Glu His Cys Cys Arg Gly Asp Val
                245                 250                 255
Leu Asp Cys Leu Gln Asp Gly Glu Lys Ile Met Ser Tyr Ile Cys Ser
            260                 265                 270
Gln Gln Asp Thr Leu Ser Asn Lys Ile Thr Glu Cys Cys Lys Leu Thr
        275                 280                 285
Thr Leu Glu Arg Gly Gln Cys Ile Ile His Ala Glu Asn Asp Glu Lys
    290                 295                 300
Pro Glu Gly Leu Ser Pro Asn Leu Asn Arg Phe Leu Gly Asp Arg Asp
305                 310                 315                 320
Phe Asn Gln Phe Ser Ser Gly Glu Lys Asn Ile Phe Leu Ala Ser Phe
                325                 330                 335
Val His Glu Tyr Ser Arg Arg His Pro Gln Leu Ala Val Ser Val Ile
            340                 345                 350
Leu Arg Val Ala Lys Gly Tyr Gln Glu Leu Leu Glu Lys Cys Phe Gln
        355                 360                 365
```

```
Thr Glu Asn Pro Leu Glu Cys Gln Asp Lys Gly Glu Glu Glu Leu Gln
    370                 375                 380
Lys Tyr Ile Gln Glu Ser Gln Ala Leu Ala Lys Arg Ser Cys Gly Leu
385                 390                 395                 400
Phe Gln Lys Leu Gly Glu Tyr Tyr Leu Gln Asn Ala Phe Leu Val Ala
                405                 410                 415
Tyr Thr Lys Lys Ala Pro Gln Leu Thr Ser Ser Glu Leu Met Ala Ile
            420                 425                 430
Thr Arg Lys Met Ala Ala Thr Ala Ala Thr Cys Cys Gln Leu Ser Glu
        435                 440                 445
Asp Lys Leu Leu Ala Cys Gly Glu Gly Ala Ala Asp Ile Ile Ile Gly
    450                 455                 460
His Leu Cys Ile Arg His Glu Met Thr Pro Val Asn Pro Gly Val Gly
465                 470                 475                 480
Gln Cys Cys Thr Ser Ser Tyr Ala Asn Arg Arg Pro Cys Phe Ser Ser
                485                 490                 495
Leu Val Val Asp Glu Thr Tyr Val Pro Pro Ala Phe Ser Asp Asp Lys
            500                 505                 510
Phe Ile Phe His Lys Asp Leu Cys Gln Ala Gln Gly Val Ala Leu Gln
        515                 520                 525
Thr Met Lys Gln Glu Phe Leu Ile Asn Leu Val Lys Gln Lys Pro Gln
    530                 535                 540
Ile Thr Glu Glu Gln Leu Glu Ala Val Ile Ala Asp Phe Ser Gly Leu
545                 550                 555                 560
Leu Glu Lys Cys Cys Gln Gly Gln Glu Gln Glu Val Cys Phe Ala Glu
                565                 570                 575
Glu Gly Gln Lys Leu Ile Ser Lys Thr Arg Ala Ala Leu Gly Val
            580                 585                 590
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<210> 9
<211> 198
<212> PRT
<213> Homo sapiens

<400> 9

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Arg Thr Leu His Arg Asn Glu Tyr Gly Ile Ala Ser Ile Leu Asp Ser
 1               5                  10                  15
Tyr Gln Cys Thr Ala Glu Ile Ser Leu Ala Asp Leu Ala Thr Ile Phe
            20                  25                  30
Phe Ala Gln Phe Val Gln Glu Ala Thr Tyr Lys Glu Val Ser Lys Met
        35                  40                  45
Val Lys Asp Ala Leu Thr Ala Ile Glu Lys Pro Thr Gly Asp Glu Gln
    50                  55                  60
Ser Ser Gly Cys Leu Glu Asn Gln Leu Pro Ala Phe Leu Glu Glu Leu
65                  70                  75                  80
Cys His Glu Lys Glu Ile Leu Glu Lys Tyr Gly His Ser Asp Cys Cys
                85                  90                  95
Ser Gln Ser Glu Glu Gly Arg His Asn Cys Phe Leu Ala His Lys Lys
            100                 105                 110
Pro Thr Pro Ala Ser Ile Pro Leu Phe Gln Val Pro Glu Pro Val Thr
        115                 120                 125
Ser Cys Glu Ala Tyr Glu Glu Asp Arg Glu Thr Phe Met Asn Lys Phe
    130                 135                 140
Ile Tyr Glu Ile Ala Arg Arg His Pro Phe Leu Tyr Ala Pro Thr Ile
145                 150                 155                 160
Leu Leu Trp Ala Ala Arg Tyr Asp Lys Ile Ile Pro Ser Cys Cys Lys
                165                 170                 175
Ala Glu Asn Ala Val Glu Cys Phe Gln Thr Lys Ala Ala Thr Val Thr
```

```
            180                 185                 190
Lys Glu Leu Arg Glu Ser
        195
```

<210> 10
<211> 192
<212> PRT
<213> Homo sapiens

<400> 10

```
Ser Leu Leu Asn Gln His Ala Cys Ala Val Met Lys Asn Phe Gly Thr
 1               5                  10                  15
Arg Thr Phe Gln Ala Ile Thr Val Thr Lys Leu Ser Gln Lys Phe Thr
            20                  25                  30
Lys Val Asn Phe Thr Glu Ile Gln Lys Leu Val Leu Asp Val Ala His
        35                  40                  45
Val His Glu His Cys Cys Arg Gly Asp Val Leu Asp Cys Leu Gln Asp
    50                  55                  60
Gly Glu Lys Ile Met Ser Tyr Ile Cys Ser Gln Gln Asp Thr Leu Ser
65                  70                  75                  80
Asn Lys Ile Thr Glu Cys Cys Lys Leu Thr Thr Leu Glu Arg Gly Gln
                85                  90                  95
Cys Ile Ile His Ala Glu Asn Asp Glu Lys Pro Glu Gly Leu Ser Pro
            100                 105                 110
Asn Leu Asn Arg Phe Leu Gly Asp Arg Asp Phe Asn Gln Phe Ser Ser
        115                 120                 125
Gly Glu Lys Asn Ile Phe Leu Ala Ser Phe Val His Glu Tyr Ser Arg
    130                 135                 140
Arg His Pro Gln Leu Ala Val Ser Val Ile Leu Arg Val Ala Lys Gly
145                 150                 155                 160
Tyr Gln Glu Leu Leu Glu Lys Cys Phe Gln Thr Glu Asn Pro Leu Glu
                165                 170                 175
Cys Gln Asp Lys Gly Glu Glu Glu Leu Gln Lys Tyr Ile Gln Glu Ser
            180                 185                 190
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<210> 11
<211> 201
<212> PRT
<213> Homo sapiens

<400> 11

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Gln Ala Leu Ala Lys Arg Ser Cys Gly Leu Phe Gln Lys Leu Gly Glu
 1               5                  10                  15
Tyr Tyr Leu Gln Asn Glu Phe Leu Val Ala Tyr Thr Lys Lys Ala Pro
            20                  25                  30
Gln Leu Thr Ser Ser Ala Leu Met Ala Ile Thr Arg Lys Met Ala Ala
        35                  40                  45
Thr Ala Ala Thr Cys Cys Gln Leu Ser Glu Asp Lys Leu Leu Ala Cys
    50                  55                  60
Gly Glu Gly Ala Ala Asp Ile Ile Ile Gly His Leu Cys Ile Arg His
65                  70                  75                  80
Glu Met Thr Pro Val Asn Pro Gly Val Gly Gln Cys Cys Thr Ser Ser
                85                  90                  95
Tyr Ala Asn Arg Arg Pro Cys Phe Ser Ser Leu Val Val Asp Glu Thr
            100                 105                 110
Tyr Val Pro Pro Ala Phe Ser Asp Asp Lys Phe Ile Phe His Lys Asp
        115                 120                 125
```

```
Leu Cys Gln Ala Gln Gly Val Ala Leu Gln Thr Met Lys Gln Glu Phe
    130                 135                 140
Leu Ile Asn Leu Val Lys Gln Lys Pro Gln Ile Thr Glu Glu Gln Leu
145                 150                 155                 160
Glu Ala Val Ile Ala Asp Phe Ser Gly Leu Leu Glu Lys Cys Cys Gln
                165                 170                 175
Gly Gln Glu Gln Glu Val Cys Phe Ala Glu Glu Gly Gln Lys Leu Ile
            180                 185                 190
Ser Lys Thr Arg Ala Ala Leu Gly Val
        195                 200
```

<210> 12
<211> 390
<212> PRT
<213> Homo sapiens

<400> 12

```
Arg Thr Leu His Arg Asn Glu Tyr Gly Ile Ala Ser Ile Leu Asp Ser
 1               5                  10                  15
Tyr Gln Cys Thr Ala Glu Ile Ser Leu Ala Asp Leu Ala Thr Ile Phe
            20                  25                  30
Phe Ala Gln Phe Val Gln Glu Ala Thr Tyr Lys Glu Val Ser Lys Met
        35                  40                  45
Val Lys Asp Ala Leu Thr Ala Ile Glu Lys Pro Thr Gly Asp Glu Gln
    50                  55                  60
Ser Ser Gly Cys Leu Glu Asn Gln Leu Pro Ala Phe Leu Glu Glu Leu
65                  70                  75                  80
Cys His Glu Lys Glu Ile Leu Glu Lys Tyr Gly His Ser Asp Cys Cys
                85                  90                  95
Ser Gln Ser Glu Glu Gly Arg His Asn Cys Phe Leu Ala His Lys Lys
            100                 105                 110
Pro Thr Pro Ala Ser Ile Pro Leu Phe Gln Val Pro Glu Pro Val Thr
        115                 120                 125
Ser Cys Glu Ala Tyr Glu Glu Asp Arg Glu Thr Phe Met Asn Lys Phe
    130                 135                 140
Ile Tyr Glu Ile Ala Arg Arg His Pro Phe Leu Tyr Ala Pro Thr Ile
145                 150                 155                 160
Leu Leu Trp Ala Ala Arg Tyr Asp Lys Ile Ile Pro Ser Cys Cys Lys
                165                 170                 175
Ala Glu Asn Ala Val Glu Cys Phe Gln Thr Lys Ala Ala Thr Val Thr
            180                 185                 190
Lys Glu Leu Arg Glu Ser Ser Leu Leu Asn Gln His Ala Cys Ala Val
        195                 200                 205
Met Lys Asn Phe Gly Thr Arg Thr Phe Gln Ala Ile Thr Val Thr Lys
    210                 215                 220
Leu Ser Gln Lys Phe Thr Lys Val Asn Phe Thr Glu Ile Gln Lys Leu
225                 230                 235                 240
Val Leu Asp Val Ala His Val His Glu His Cys Cys Arg Gly Asp Val
                245                 250                 255
Leu Asp Cys Leu Gln Asp Gly Glu Lys Ile Met Ser Tyr Ile Cys Ser
            260                 265                 270
Gln Gln Asp Thr Leu Ser Asn Lys Ile Thr Glu Cys Cys Lys Leu Thr
        275                 280                 285
Thr Leu Glu Arg Gly Gln Cys Ile Ile His Ala Glu Asn Asp Glu Lys
    290                 295                 300
Pro Glu Gly Leu Ser Pro Asn Leu Asn Arg Phe Leu Gly Asp Arg Asp
305                 310                 315                 320
Phe Asn Gln Phe Ser Ser Gly Glu Lys Asn Ile Phe Leu Ala Ser Phe
```

```
                325                 330                 335
Val His Glu Tyr Ser Arg Arg His Pro Gln Leu Ala Val Ser Val Ile
            340                 345                 350
Leu Arg Val Ala Lys Gly Tyr Gln Glu Leu Leu Glu Lys Cys Phe Gln
        355                 360                 365
Thr Glu Asn Pro Leu Glu Cys Gln Asp Lys Gly Glu Glu Glu Leu Gln
    370                 375                 380
Lys Tyr Ile Gln Glu Ser
385                 390
```

<210> 13
<211> 393
<212> PRT
<213> Homo sapiens

<400> 13

```
Ser Leu Leu Asn Gln His Ala Cys Ala Val Met Lys Asn Phe Gly Thr
 1               5                  10                  15
Arg Thr Phe Gln Ala Ile Thr Val Thr Lys Leu Ser Gln Lys Phe Thr
            20                  25                  30
Lys Val Asn Phe Thr Glu Ile Gln Lys Leu Val Leu Asp Val Ala His
        35                  40                  45
Val His Glu His Cys Cys Arg Gly Asp Val Leu Asp Cys Leu Gln Asp
    50                  55                  60
Gly Glu Lys Ile Met Ser Tyr Ile Cys Ser Gln Gln Asp Thr Leu Ser
65                  70                  75                  80
Asn Lys Ile Thr Glu Cys Cys Lys Leu Thr Thr Leu Glu Arg Gly Gln
                85                  90                  95
Cys Ile Ile His Ala Glu Asn Asp Glu Lys Pro Glu Gly Leu Ser Pro
            100                 105                 110
Asn Leu Asn Arg Phe Leu Gly Asp Arg Asp Phe Asn Gln Phe Ser Ser
        115                 120                 125
Gly Glu Lys Asn Ile Phe Leu Ala Ser Phe Val His Glu Tyr Ser Arg
    130                 135                 140
Arg His Pro Gln Leu Ala Val Ser Val Ile Leu Arg Val Ala Lys Gly
145                 150                 155                 160
Tyr Gln Glu Leu Leu Glu Lys Cys Phe Gln Thr Glu Asn Pro Leu Glu
                165                 170                 175
Cys Gln Asp Lys Gly Glu Glu Glu Leu Gln Lys Tyr Ile Gln Glu Ser
            180                 185                 190
Gln Ala Leu Ala Lys Arg Ser Cys Gly Leu Phe Gln Lys Leu Gly Glu
        195                 200                 205
Tyr Tyr Leu Gln Asn Glu Phe Leu Val Ala Tyr Thr Lys Lys Ala Pro
    210                 215                 220
Gln Leu Thr Ser Ser Ala Leu Met Ala Ile Thr Arg Lys Met Ala Ala
225                 230                 235                 240
Thr Ala Ala Thr Cys Cys Gln Leu Ser Glu Asp Lys Leu Leu Ala Cys
                245                 250                 255
Gly Glu Gly Ala Ala Asp Ile Ile Ile Gly His Leu Cys Ile Arg His
            260                 265                 270
Glu Met Thr Pro Val Asn Pro Gly Val Gly Gln Cys Cys Thr Ser Ser
        275                 280                 285
Tyr Ala Asn Arg Arg Pro Cys Phe Ser Ser Leu Val Val Asp Glu Thr
    290                 295                 300
Tyr Val Pro Pro Ala Phe Ser Asp Asp Lys Phe Ile Phe His Lys Asp
305                 310                 315                 320
Leu Cys Gln Ala Gln Gly Val Ala Leu Gln Thr Met Lys Gln Glu Phe
                325                 330                 335
```

```
Leu Ile Asn Leu Val Lys Gln Lys Pro Gln Ile Thr Glu Glu Gln Leu
            340                 345                 350
Glu Ala Val Ile Ala Asp Phe Ser Gly Leu Leu Glu Lys Cys Cys Gln
        355                 360                 365
Gly Gln Glu Gln Glu Val Cys Phe Ala Glu Glu Gly Gln Lys Leu Ile
    370                 375                 380
Ser Lys Thr Arg Ala Ala Leu Gly Val
385                 390
```

<210> 14
<211> 325
<212> PRT
<213> Homo sapiens

<400> 14

```
Met Ser Tyr Ile Cys Ser Gln Gln Asp Thr Leu Ser Asn Lys Ile Thr
 1               5                  10                  15
Glu Cys Cys Lys Leu Thr Thr Leu Glu Arg Gly Gln Cys Ile Ile His
            20                  25                  30
Ala Glu Asn Asp Glu Lys Pro Glu Gly Leu Ser Pro Asn Leu Asn Arg
        35                  40                  45
Phe Leu Gly Asp Arg Asp Phe Asn Gln Phe Ser Ser Gly Glu Lys Asn
    50                  55                  60
Ile Phe Leu Ala Ser Phe Val His Glu Tyr Ser Arg Arg His Pro Gln
65                  70                  75                  80
Leu Ala Val Ser Val Ile Leu Arg Val Ala Lys Gly Tyr Gln Glu Leu
                85                  90                  95
Leu Glu Lys Cys Phe Gln Thr Glu Asn Pro Leu Glu Cys Gln Asp Lys
            100                 105                 110
Gly Glu Glu Glu Leu Gln Lys Tyr Ile Gln Glu Ser Gln Ala Leu Ala
        115                 120                 125
Lys Arg Ser Cys Gly Leu Phe Gln Lys Leu Gly Glu Tyr Tyr Leu Gln
    130                 135                 140
Asn Glu Phe Leu Val Ala Tyr Thr Lys Lys Ala Pro Gln Leu Thr Ser
145                 150                 155                 160
Ser Ala Leu Met Ala Ile Thr Arg Lys Met Ala Ala Thr Ala Ala Thr
                165                 170                 175
Cys Cys Gln Leu Ser Glu Asp Lys Leu Leu Ala Cys Gly Glu Gly Ala
            180                 185                 190
Ala Asp Ile Ile Ile Gly His Leu Cys Ile Arg His Glu Met Thr Pro
        195                 200                 205
Val Asn Pro Gly Val Gly Gln Cys Cys Thr Ser Ser Tyr Ala Asn Arg
    210                 215                 220
Arg Pro Cys Phe Ser Ser Leu Val Val Asp Glu Thr Tyr Val Pro Pro
225                 230                 235                 240
Ala Phe Ser Asp Asp Lys Phe Ile Phe His Lys Asp Leu Cys Gln Ala
                245                 250                 255
Gln Gly Val Ala Leu Gln Thr Met Lys Gln Glu Phe Leu Ile Asn Leu
            260                 265                 270
Val Lys Gln Lys Pro Gln Ile Thr Glu Glu Gln Leu Glu Ala Val Ile
        275                 280                 285
Ala Asp Phe Ser Gly Leu Leu Glu Lys Cys Cys Gln Gly Gln Glu Gln
    290                 295                 300
Glu Val Cys Phe Ala Glu Glu Gly Gln Lys Leu Ile Ser Lys Thr Arg
305                 310                 315                 320
Ala Ala Leu Gly Val
                325
```

<210> 15
<211> 192
<212> PRT
<213> Homo sapiens

<400> 15
Ser Leu Leu Asn Gln His Ala Cys Ala Val Met Lys Asn Phe Gly Thr
 1   5   10   15
Arg Thr Phe Gln Ala Ile Thr Val Thr Lys Leu Ser Gln Lys Phe Thr
            20   25   30
Lys Val Gln Phe Thr Glu Ile Gln Lys Leu Val Leu Asp Val Ala His
        35   40   45
Val His Glu His Cys Cys Arg Gly Asp Val Leu Asp Cys Leu Gln Asp
    50   55   60
Gly Glu Lys Ile Met Ser Tyr Ile Cys Ser Gln Gln Asp Thr Leu Ser
65   70   75   80
Asn Lys Ile Thr Glu Cys Cys Lys Leu Thr Thr Leu Glu Arg Gly Gln
                85   90   95
Cys Ile Ile His Ala Glu Asn Asp Glu Lys Pro Glu Gly Leu Ser Pro
            100   105   110
Asn Leu Asn Arg Phe Leu Gly Asp Arg Asp Phe Asn Gln Phe Ser Ser
        115   120   125
Gly Glu Lys Asn Ile Phe Leu Ala Ser Phe Val His Glu Tyr Ser Arg
    130   135   140
Arg His Pro Gln Leu Ala Val Ser Val Ile Leu Arg Val Ala Lys Gly
145   150   155   160
Tyr Gln Glu Leu Leu Glu Lys Cys Phe Gln Thr Glu Asn Pro Leu Glu
                165   170   175
Cys Gln Asp Lys Gly Glu Glu Glu Leu Gln Lys Tyr Ile Gln Glu Ser
            180   185   190

<210> 16
<211> 390
<212> PRT
<213> Homo sapiens

<400> 16
Arg Thr Leu His Arg Asn Glu Tyr Gly Ile Ala Ser Ile Leu Asp Ser
 1   5   10   15
Tyr Gln Cys Thr Ala Glu Ile Ser Leu Ala Asp Leu Ala Thr Ile Phe
            20   25   30
Phe Ala Gln Phe Val Gln Glu Ala Thr Tyr Lys Glu Val Ser Lys Met
        35   40   45
Val Lys Asp Ala Leu Thr Ala Ile Glu Lys Pro Thr Gly Asp Glu Gln
    50   55   60
Ser Ser Gly Cys Leu Glu Asn Gln Leu Pro Ala Phe Leu Glu Glu Leu
65   70   75   80
Cys His Glu Lys Glu Ile Leu Glu Lys Tyr Gly His Ser Asp Cys Cys
                85   90   95
Ser Gln Ser Glu Glu Gly Arg His Asn Cys Phe Leu Ala His Lys Lys
            100   105   110
Pro Thr Pro Ala Ser Ile Pro Leu Phe Gln Val Pro Glu Pro Val Thr
        115   120   125
Ser Cys Glu Ala Tyr Glu Glu Asp Arg Glu Thr Phe Met Asn Lys Phe
    130   135   140
Ile Tyr Glu Ile Ala Arg Arg His Pro Phe Leu Tyr Ala Pro Thr Ile
145   150   155   160
Leu Leu Trp Ala Ala Arg Tyr Asp Lys Ile Ile Pro Ser Cys Cys Lys

```
                165                 170                 175
Ala Glu Asn Ala Val Glu Cys Phe Gln Thr Lys Ala Ala Thr Val Thr
            180                 185                 190
Lys Glu Leu Arg Glu Ser Ser Leu Leu Asn Gln His Ala Cys Ala Val
        195                 200                 205
Met Lys Asn Phe Gly Thr Arg Thr Phe Gln Ala Ile Thr Val Thr Lys
    210                 215                 220
Leu Ser Gln Lys Phe Thr Lys Val Gln Phe Thr Glu Ile Gln Lys Leu
225                 230                 235                 240
Val Leu Asp Val Ala His Val His Glu His Cys Cys Arg Gly Asp Val
                245                 250                 255
Leu Asp Cys Leu Gln Asp Gly Glu Lys Ile Met Ser Tyr Ile Cys Ser
            260                 265                 270
Gln Gln Asp Thr Leu Ser Asn Lys Ile Thr Glu Cys Cys Lys Leu Thr
        275                 280                 285
Thr Leu Glu Arg Gly Gln Cys Ile Ile His Ala Glu Asn Asp Glu Lys
    290                 295                 300
Pro Glu Gly Leu Ser Pro Asn Leu Asn Arg Phe Leu Gly Asp Arg Asp
305                 310                 315                 320
Phe Asn Gln Phe Ser Ser Gly Glu Lys Asn Ile Phe Leu Ala Ser Phe
                325                 330                 335
Val His Glu Tyr Ser Arg Arg His Pro Gln Leu Ala Val Ser Val Ile
            340                 345                 350
Leu Arg Val Ala Lys Gly Tyr Gln Glu Leu Leu Glu Lys Cys Phe Gln
        355                 360                 365
Thr Glu Asn Pro Leu Glu Cys Gln Asp Lys Gly Glu Glu Glu Leu Gln
    370                 375                 380
Lys Tyr Ile Gln Glu Ser
385                 390
```

<210> 17
<211> 393
<212> PRT
<213> Homo sapiens

<400> 17

```
Ser Leu Leu Asn Gln His Ala Cys Ala Val Met Lys Asn Phe Gly Thr
 1               5                  10                  15
Arg Thr Phe Gln Ala Ile Thr Val Thr Lys Leu Ser Gln Lys Phe Thr
            20                  25                  30
Lys Val Gln Phe Thr Glu Ile Gln Lys Leu Val Leu Asp Val Ala His
        35                  40                  45
Val His Glu His Cys Cys Arg Gly Asp Val Leu Asp Cys Leu Gln Asp
    50                  55                  60
Gly Glu Lys Ile Met Ser Tyr Ile Cys Ser Gln Gln Asp Thr Leu Ser
65                  70                  75                  80
Asn Lys Ile Thr Glu Cys Cys Lys Leu Thr Thr Leu Glu Arg Gly Gln
                85                  90                  95
Cys Ile Ile His Ala Glu Asn Asp Glu Lys Pro Glu Gly Leu Ser Pro
            100                 105                 110
Asn Leu Asn Arg Phe Leu Gly Asp Arg Asp Phe Asn Gln Phe Ser Ser
        115                 120                 125
Gly Glu Lys Asn Ile Phe Leu Ala Ser Phe Val His Glu Tyr Ser Arg
    130                 135                 140
Arg His Pro Gln Leu Ala Val Ser Val Ile Leu Arg Val Ala Lys Gly
145                 150                 155                 160
Tyr Gln Glu Leu Leu Glu Lys Cys Phe Gln Thr Glu Asn Pro Leu Glu
                165                 170                 175
```

```
Cys Gln Asp Lys Gly Glu Glu Glu Leu Gln Lys Tyr Ile Gln Glu Ser
            180                 185                 190
Gln Ala Leu Ala Lys Arg Ser Cys Gly Leu Phe Gln Lys Leu Gly Glu
        195                 200                 205
Tyr Tyr Leu Gln Asn Ala Phe Leu Val Ala Tyr Thr Lys Lys Ala Pro
    210                 215                 220
Gln Leu Thr Ser Ser Glu Leu Met Ala Ile Thr Arg Lys Met Ala Ala
225                 230                 235                 240
Thr Ala Ala Thr Cys Cys Gln Leu Ser Glu Asp Lys Leu Leu Ala Cys
                245                 250                 255
Gly Glu Gly Ala Ala Asp Ile Ile Ile Gly His Leu Cys Ile Arg His
            260                 265                 270
Glu Met Thr Pro Val Asn Pro Gly Val Gly Gln Cys Cys Thr Ser Ser
        275                 280                 285
Tyr Ala Asn Arg Arg Pro Cys Phe Ser Ser Leu Val Val Asp Glu Thr
    290                 295                 300
Tyr Val Pro Pro Ala Phe Ser Asp Asp Lys Phe Ile Phe His Lys Asp
305                 310                 315                 320
Leu Cys Gln Ala Gln Gly Val Ala Leu Gln Thr Met Lys Gln Glu Phe
                325                 330                 335
Leu Ile Asn Leu Val Lys Gln Lys Pro Gln Ile Thr Glu Glu Gln Leu
            340                 345                 350
Glu Ala Val Ile Ala Asp Phe Ser Gly Leu Leu Glu Lys Cys Cys Gln
        355                 360                 365
Gly Gln Glu Gln Glu Val Cys Phe Ala Glu Glu Gly Gln Lys Leu Ile
    370                 375                 380
Ser Lys Thr Arg Ala Ala Leu Gly Val
385                 390
```

<210> 18
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 18
atgaagtggg tggaatcaat ttttttaatt 30

<210> 19
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 19
attcatttat gagatagcaa gaaggcat 28

<210> 20
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 20
aaaaaatcat gtcctacata tgttctcaa 29

<210> 21
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 21
aaactcgaga agtgggtgga a 21

<210> 22
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 22
aaactcgagt taaactccca aagc 24

<210> 23
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 23
gattgacaag taatacgctg tttcctc 27

<210> 24
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 24
tttgtaaacc tcttgtaaag ttacaag 27

<210> 25
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 25
ccaggcacag tctctagtct a 21

<210> 26

<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic

<400> 26
ggacaggacc aagtacaggc t 21